REMARKS

The present application is submitted in an earnest effort to advance this case to issue without delay.

The substitute specification has been provided in the format required by the Examiner.

A new set of claims is provided in which at least claim 14 is a claim drawn in method steps and conforming with current U.S. practice. That claim is phrased to be fully supported by the original specification. The new specification has been amplified with respect to the discussions of the prior art, etc.

The Examiner has rejected the original claims primarily upon the Williams reference and a careful review of Williams will show that, while Williams does disclose the treatment of tobacco with microwaves, Williams does heat the tobacco product and, in fact the heating is key to the operation in Williams. Equivalent heating is excluded by claim 14. Furthermore, the invention makes clear that the treatment is effected of the packaged tobacco products using a multiplicity of such packages at a time.

Applicant has provided an explanation as to how the invention distinguishes over the art, supported by substantial evidence and that is provided below.

The invention US 6,135,121 refers to a method of treatment of tobacco that brings about the reduction of the nitrosamines levels or prevents the formation of nitrosamines through temperature increase of tobacco by using dielectric heating of microwave radiation. The treatment of tobacco described by the US 6,135,121 invention doesn't bring about results without significant increase of its temperature. The tobacco is treated with a known technology, i.e. by exposure to microwave radiation energy. The thermal results in tobacco are achieved by producing microwave radiation of electromagnetic waves of specific and predetermined frequency (Col. 3, Ins. 41-42, the microwave radiation has a frequency of about 900 to about 2500 MHz), which are produced by Magnetron tubes which have coordinated cavities from their construction for an emission of electromagnetic waves of specific frequency (Col. 14, Ins. 16-24). For better understanding, we attach some prospectus of Magnetron tubes. In order to achieve the thermal results that are described above, Williams is using technology of thermal process apparatuses with microwaves, such as the microwave devices for food heating (Col. 14, Ins. 32-34). As for the microwaves of other frequencies and wavelengths (Col. 14, Ins. 12-15), the Pulse Magnetron Tubes are tunable in a specific frequency of operation from 2700 to 2900 MHz, as you can see from the attached prospectus. It is known that microwave radiation (at 2450 MHz) is non-ionizing,

and in sufficient intensity will simply cause the molecules in matter to vibrate, thereby causing friction, which produces the heat that cooks the food.

On the contrary, the application with No. 10/070,020 is not related at all with the US 6,135,121 invention, because the application of the present method reveals a new technology, as it is mentioned below:

The technology of the present method does not bring about measurable thermal effects to the tobacco products. With sensitive equipment no difference in temperature is traced between tobacco products that are treated by the method and tobacco products that remain in the same place (inside a grounded metallic cage) at the same time but are not subject to treatment by the method. Consequently there is no need to increase temperature according to the present invention to achieve the qualitative improvement of the tobacco products.

The application of the method uses source of electromagnetic energy, where this energy is dispatched to the space occupied by the mass of the products of tobacco. Electromagnetic energy comes from a synthetic electromagnetic emission that occupies broader regions of the frequencies of the electromagnetic spectrum from 30 Hz to 300 GHz, and is comprised by a specified and/or unspecified

multitude of emissions of electromagnetic waves of dissimilar frequencies.

The synthetic emission is produced by electronic and/or electromechanical devices.

A main characteristic of operation of each emission of electromagnetic waves, of identified frequency, and/or synthetic emission as a total is that, is not characterized by a continuous time operation, but instead by an operation mode characterized by time interruption of operation and/or the change of their intensity until it becomes zero with any simple or composite form of pulsations.

The method uses the resonance phenomenon with a periodic sequence in order to bring about the qualitative improvement of products of the tobacco. So the method achieves the beneficial modification of their physicochemical attributes achieving as a result, the reduction or even the elimination of the toxic and mutagenic effects of the tobacco's products on biological organisms. The application of the method is using a plethora of emissions of dissimilar frequencies of electromagnetic waves and the emitted impulse excitation action of each defined emission of electromagnetic waves of specified frequency (for 30 example, 100.000.000,0001 Hz or 100.000.000,0002 Hz or 100.000.000,0003 Hz etc. of defined multitude of emissions of electromagnetic waves,

i.e. digital sweep or multitude of non-defined emissions of electromagnetic waves, i.e. analogue sweep). So that it coincides suitably at regular or not regular time intervals the emitted action of impulse excitation, of each determined emission of electromagnetic waves from the multitude that is emitted, with every natural frequency of oscillation of each atomic and/or molecular and/or more macroscopic system of elements of tobacco products, so that they reach in resonance conditions i.e. of maximum energy absorption with the action of impulse excitation of suitable frequency of electromagnetic waves, that emanates from the source of electromagnetic energy of the application of method. This, it involves the equilibration and identification of all the atomic and/or molecular and/or more macroscopic systems of elements of tobacco products, so that the attributes of elements that tend to behave as free radicals is suspended. The results of qualitative upgrade of products of tobacco are achieved with the particularity described by the method and are the time interruption and/or weakening of the impulse excitation action (compulsion force) of each defined emission of specified frequency of electromagnetic waves.

Therefore, during relaxation time, which occurs with the interruption of reciprocal resonance between forces of compulsion and the elements of products of tobacco, the elements will readjust

itself to a new position of the chemical equilibrium. The readjustment is known as chemical relaxation.

One way to apply the method by utilizing electronic technology is the use of an electronic device, which can produce a composite electromagnetic emission that contains a specified and/or unspecified multitude of electromagnetic wave emissions of dissimilar frequencies, so that these emissions occupy a very broad band of frequencies of the electromagnetic spectrum from 30 Hz to 300 GHz.

By using the main characteristic of the method, which is the interrupted time operation of each emission, of electromagnetic waves with a specific frequency, and/'or the change of its intensity until it becomes zero with any simple or composite form of pulsations, we construct a device for the production of the emissions in the following way:

The device consists of four units, the first of which consists of a function generator with adjustable duty cycle; for example, an adjustment at its output, will give us symmetrical square pulses at a frequency of 200 KHz. The signal received from the output of the first unit, is directed to the second unit, which consists of an electronic circuit, that operates as a power supply switch, i.e. from its output we will take the power supply for the third unit. The third unit consists of a free oscillator with output power of

1.5 Watt , without filters for the reduction of the produced harmonic frequencies at its output and with resonant frequency of 600 MHz. Knowing that the emission frequency of a free oscillator depends on the stability of its supply voltage, we produce a shift at its operation frequency, by interrupting its supply from the second unit (the power supply switch), so that frequency increases when voltage decreases and decreases when voltage increases. In this way, as the oscillator will operate with a periodically interrupted supply voltage, the way we adjusted it through the first and second unit, will give operation of the oscillator with time interruptions and, at the same time, a continuous variation of the produced central frequency, including the harmonic frequencies produced by it, which finally results in the creation of a number of signals of different frequencies at a broad range of frequencies. The output of the third unit is directed to the input of a high frequency class A broadband amplifier (RF), with operation range from 100 KHz to 3 GHz, which can amplify its input signal up to 20 Watt, and which is the fourth unit of the device. The final amplified signal from the output of the fourth unit, without filters for the reduction of the harmonic frequencies, is conveyed through a coaxial conductor to the emission antenna, where the signal is emitted in the form of a synthetic emission,

consisting of an abundance of emissions of electromagnetic waves of dissimilar frequencies.

With a spectrum analyzer we can ascertain that the synthetic emission, created 30 by these electronic circuits, has the form of white noise and occupies the frequencies areas of the electromagnetic spectrum from 150 KHz to 3 GHz.

This device for the practical application of the method mentioned herein, is suitable for the treatment of tobacco products, which occupy with their mass a volume up to a maximum of 200 m3, yielding measurable results of beneficial modification of their physico-chemical properties in a time period of 1 hour, achieving the highest level of qualitative improvement through the modification of their physicochemical properties in a time period of 48 hours.

In File A, we attach a Study Report related to the evaluation of physiological and pathophysiological changes (emphysema) in experimental animals repeatedly exposed to processed and non-processed cigarette smoke during 60 day exposure period (29 pages). This processed cigarette smoke comes from cigarettes of a specific quality tobacco which have been processed by the method that this invention describes.

The non-processed cigarette smoke comes from cigarettes of the same specific quality tobacco which have not been subjected to the process of the above method.

In order to understand the operation of the synthetic electromagnetic emission, which contains a defined and/or undefined multitude of emissions of electromagnetic waves of dissimilar frequencies, we attach File B in which photographs are included, picturing the electromagnetic spectrum analyzer of the HAMEG Instruments Company, by placing at its input a wide band antenna, situated at a 10m distance from the antenna of the synthetic emission of the application of the method.

In File L, Technical Specifications of HAMEG HM5011 spectrum analyzer, are shown. (3 pages)

In File B Photo 1, emissions of electromagnetic waves are pictured, in the part of tie electromagnetic spectrum from 150 KHz to 1050 MHz, and without the device for the application of the method in operation and with a filter bandwidth of 21) KHz selected on the HAMEG spectrum analyzer.

In File B Photo 2, emissions of dissimilar frequencies of electromagnetic waves of the synthetic electromagnetic emission are pictured, for the application of the method in the part of the electromagnetic spectrum from 150KHz to 1050MHz, by supplying a signal of symmetrical square pulses at the frequency of 120KHz fre m the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 3, emissions of electromagnetic waves of the synthetic electromagnetic emission are pictured, for the application of the method in the pact of the electromagnetic spectrum from 150 KHz to 1050 MHz, by supplying a signal of symmetrical square pulses at the frequency of 10 KHz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 4, emissions of electromagnetic waves of the synthetic electromagnetic emission are pictured, for the application of the method in the part of the electromagnetic spectrum from 150 KHz to 1050 MHz, by supplying a signal of symmetrical square pulses at the frequency of 1 KHz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 5, emissions of electromagnetic waves of the synthetic electromagnetic emission are pictured, for the application of the method in the part, of the electromagnetic spectrum from 472,3 MHz to 672,3 MHz, by supplying a signal of symmetrical square pulses at the frequency of 120 KHz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 6, emissions of electromagnetic waves of the synthetic electromagnetic emission are pictured, for the

application of the method in the part of the electromagnetic spectrum from 522,3 MHz to 622,3 MHz, by sup plying a signal of symmetrical square pulses at the frequency of 120 Khz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 7, emissions of electromagnetic waves of the synthetic electromagnetic emission are pictured, for the application of the method in the part of the electromagnetic spectrum from 567,3 MHz to 577,3 MHz, by supplying a signal of symmetrical square pulses at the frequency of 120 KHz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 8, an emission of electromagnetic waves of the synthetic electromagnetic emission of defined frequency of 572,3MHz is pictured, for the application of the method, by supplying a signal of symmetrical square pulses at the frequency of 120 KHz from the electronic switch of the device and with a filler bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 9, an emission of electromagnetic waves of the synthetic electromagnetic emission of defined frequency of 572,3MHz is pictured, for the application of the method, by supplying a signal of symmetrical square pulses at the frequency of 120 KHz

from the electronic switch of the device and with a filter bandwidth of 20 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 10, an emission of electromagnetic waves of the synthetic electromagnetic emission of defined frequency of 527,7 MHz is pictured, for the application of the method, by supplying a signal of symmetrical square pulses at the frequency of 10 KHz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 11, an emission of electromagnetic waves of the synthetic electromagnetic emission of defined frequency of 572,6 MHz is pictured, for the application of the method, by supplying a signal of symmetrical square pulses at the frequency of 1 KHz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 12, an emission of electromagnetic waves of the synthetic electromagnetic emission of defined frequency of 572,5 MHz is pictured, for the application of the method, by supplying a signal of symmetrical square pulses at the, frequency of 80 Hz from the electronic switch of the device and with a filter bay width of 400 KHz selected on the HAMEG spectrum analyzer.

In File B Photo 13, an emission of electromagnetic waves of the synthetic electromagnetic emission of defined frequency of 572,6 MHz is pictured, for the application of the method, by supplying a

signal of symmetrical square pulses at the: frequency of 40 Hz from the electronic switch of the device and with a filter bandwidth of 400 KHz selected on the HAMEG spectrum analyzer.

In order to further understand the operation of the synthetic electromagnetic emission which contains a specified and/or unspecified multitude of emissions of electromagnetic waves (6) of dissimilar frequencies, we attach File C, which includes diagrams which have been received with an electromagnetic spectrum analyzer of the Instrument Flight Research Company (IFR).

In File K, technical specifications of the IFR electromagnetic radiation analyzer arc: presented (8 pages).

The adjustments of the parameters on the spectrum analyzer for the waveforms pictured in all diagrams are shown on the right hand side of each diagram.

Diagram A1 of File C is received with no signals at its input.

Diagram A2 of File C is received by placing at its input a wideband antenna and without the device for the application of the method described by the invention 30 in operation.

Diagram A3 of File C is received by retaining at its input a wideband antenna which is situated at a 10m distance from the antenna of the synthetic emission for the application of the method and with the device for the application of the method described by the invention in operation.

In Diagrams B, C and D are analyzed as a function of time, three emissions of electromagnetic waves of defined frequency regarding the intensity of their emission, and the AM and FM modulations, which have a value: B = 2311,5MHz, C = 700MHz, D = 2,9GHz, and which were selected randomly among the plethora of emissions of electromagnetic waves of dissimilar frequencies of the synthetic emission for the application of the method.

Diagrams B1, C1, D1 of File C are received by placing at its input a wideband antenna and without the device for the application of the method described by the invention in operation.

Diagrams B2-3-4, C2-3-4, D2-3-4 of File C are received by retaining at its 15 input a wideband antenna and with the device for the application of the method described by the invention in operation.

Diagrams B5, C5, D5 of File C are received by retaining at its input a wideband antenna and without the device for the application of the method described by 20 the invention in operation.

Diagrams B6, C6, D6 of File C are received by retaining at its input a wideband antenna and with the device for the application of the method described by the invention in operation.

Diagrams B7, C7, D7 of File C are received by retaining at its input a wideband antenna and without the device for the application of the method described by then invention in operation.

Diagrams B8, C8, D8 of File C are received by retaining at its input a wideband antenna and with the device for the application of the method described by the invention in operation.

Diagrams B9, C9, D9 of File C are received by retaining at its input a wideband antenna and without the device for the application of the method described by the: invention in operation.

Diagrams B10, C10, D10 of File C are received by retaining at its input a wideband antenna and with the device for the application of the method described by the invention in operation.

Diagrams B11, C11, D11 of File C are received by having activated the reception of signals with an AM modulation, by retaining at its input a wideband antenna and without the device for the application of the method described by the invention in operation.

Diagrams B12, C12, D12 of File C are received by having activated the reception of signals with an AM modulation, by retaining at its input a wideband antenna and with the device for the application of the method described by the invention in operation.

Diagrams B13, C13, D13 of File C are received by having activated the reception of signals with an FM modulation, by retaining at its input a wideband antenna and without the device for the application of the method described by the invention in operation.

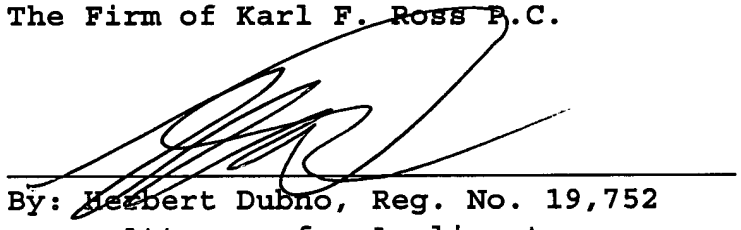
Diagrams B14, C14, D14, of File C are received by having activated the reception of signals with an FM modulation, by retaining at its

input a wideband antenna and with the device for the application of the method described by the invention in operation.

In view of the foregoing, it would appear that at least claim 14 and preferably all of the claims in the case are allowable and an early notice to that effect is earnestly solicited.

A petition for an automatic two month extension of the term is enclosed together with a PTO-2038 form charging the petition fee to a credit card of the undersigned.

Respectfully submitted,
The Firm of Karl F. Ross P.C.



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